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Title:

Evaluating the effect of maropitant, a neurokinin-1 (NK-1) receptor antagonist, on intra-operative anaesthetic requirements and post-operative nausea and vomiting in dogs undergoing routine ovariohysterectomy.

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Objectives: To establish if pre-operative maropitant significantly reduced intra-operative isoflurane requirement and reduced clinical signs associated with post-operative nausea and vomiting (PONV) in dogs.

Methods: 24 client-owned dogs presenting for ovariohysterectomy were enrolled into this prospective, double-blinded, randomised clinical trial. Eligible dogs were 0.4-8 years old, ASA grade 1-2 and not pregnant/ displaying signs of pseudocyesis or oestrus. Pre-medication consisted of acepromazine (0.03mg/kg) combined with methadone (0.3mg/kg) intra-muscularly 45 minutes before anaesthetic induction with intravenous propofol, dosed to effect. Meloxicam (0.2mg/kg) was given intravenously following cephalic vein catheterization. Additionally, at premedication, dogs were randomly assigned to receive saline (group S) (0.1ml/kg subcutaneously, n=12) or maropitant (group M) (1mg/kg subcutaneously, n=12). Methadone (0.1mg/kg intravenously) was repeated four hours later. Anaesthesia was maintained with isoflurane in oxygen, dosed to effect (same blinded observer). Monitored patient parameters included heart rate, non-invasive blood pressure, pulse oximetry, temperature, capnography and end-tidal isoflurane concentration (ETIso). Post-operatively, dogs were assessed hourly using the short form of the Glasgow Composite Pain Score (GCPS) and examined for clinical signs attributable to PONV [scored from 0 (none) to 3 (severe)]. A t-test was used to assess mean ETIso. Remaining variables were analyzed using Mann-Whitney U tests. Significance was set at $P < 0.05$.

Results: Mean \pm SD ETIso was lower in group M ($1.19 \pm 0.26\%$) than group S ($1.44 \pm 0.23\%$) ($P=0.022$). Group M had lower median [range] ETIso first incision ($1.02\% [0.77-1.8\%]$) and at 1st ovarian pedicle ligation ($1.13\% [0.50-1.84\%]$) than group S ($1.45\% [0.81-1.9\%]$ and $1.45\% [0.69-3.2\%]$; $P=0.03$ and $P=0.02$ respectively). No other cardiorespiratory variables or post-operative GCPS differed significantly between groups. Overall, 50% of dogs displayed signs attributable to PONV, with no significant difference in PONV scores between groups ($P=0.198$).

Conclusion: Maropitant reduced intra-operative isoflurane requirements, although not consistently and did not significantly affect the incidence of PONV.